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A New Tool to Trap and Sort Migrating Adult Sea Lamprey

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A new tool to trap and sort migrating adult sea lamprey

*Fish Passage 2014
Madison, WI*

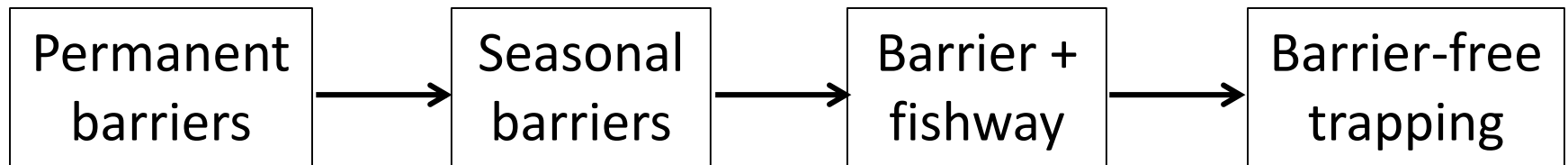
Pete Hrodey and Dr. Ulrich Reinhardt



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Education First



Strategy for Barrier and Passage Innovation



Sea lamprey trapping goals

- Assessment
- Research
- Control



Trapping strategies

- Barrier-integrated traps
- Portable traps
- Fyke nets



Traditional funnel traps



Eel ladder-style traps (ELST)

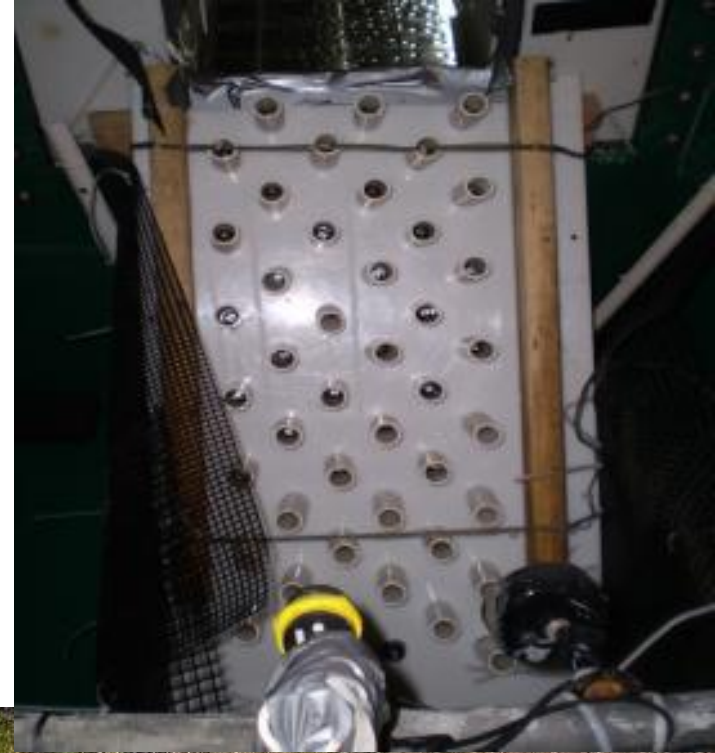


Proof of concept

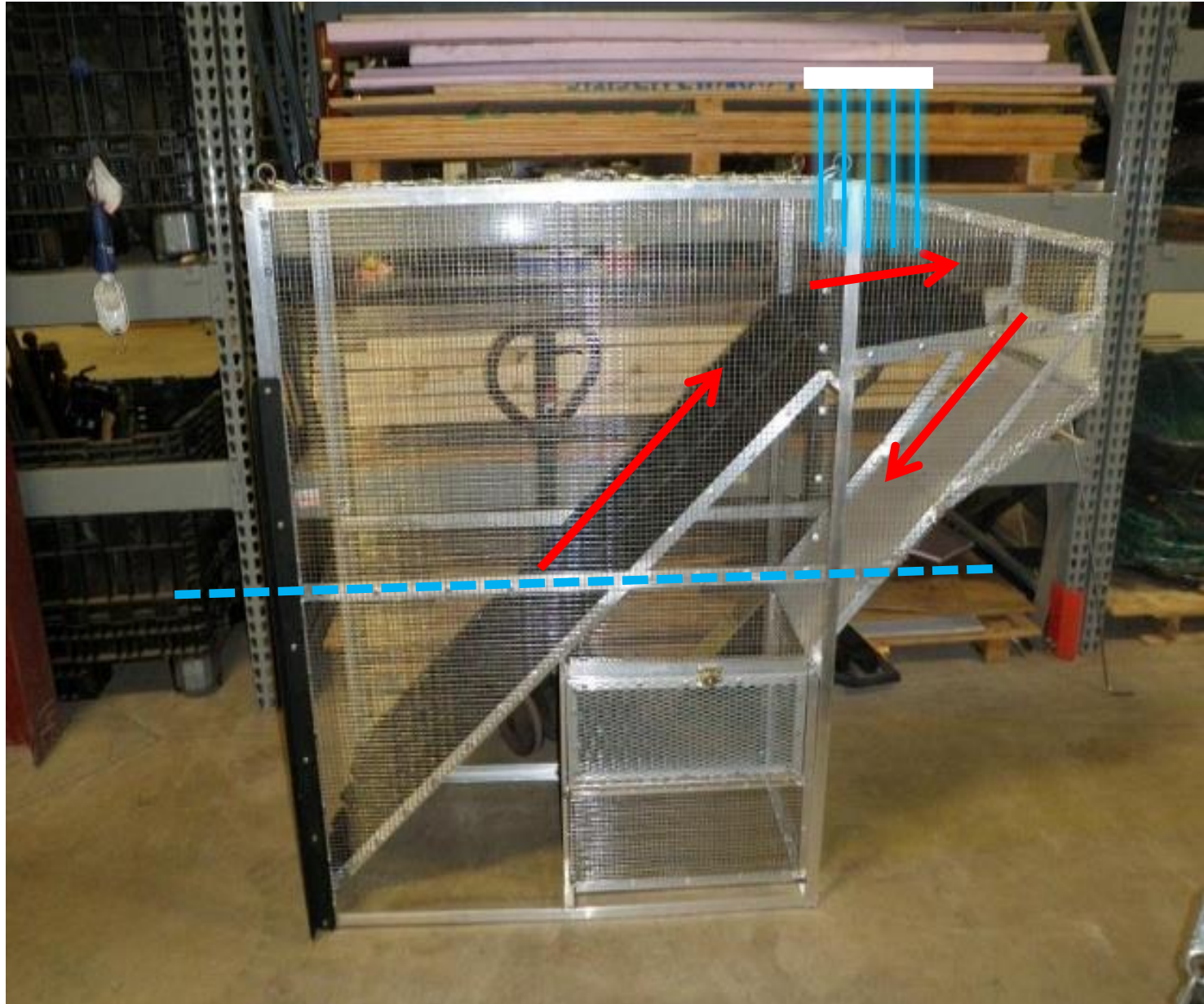
Investigated ramp angle, peg spacing, and attraction flow:

- 96% success rate up to 80° with or without flow
- Optimal design is 45° , small spacing, and high flow

McDonald and Desrochers 2012



ELST design



Field trials



- ELST can catch lamprey
- Performance is site specific
- Passage success is variable
- 100% retention
- No by-catch
- Do they catch a different type of lamprey?

ELST + trap and sort = ???

- Controlled environment
- Increase efficiency
- Improve safety
- Decrease operational costs
- Ultimate goal is automated sorting



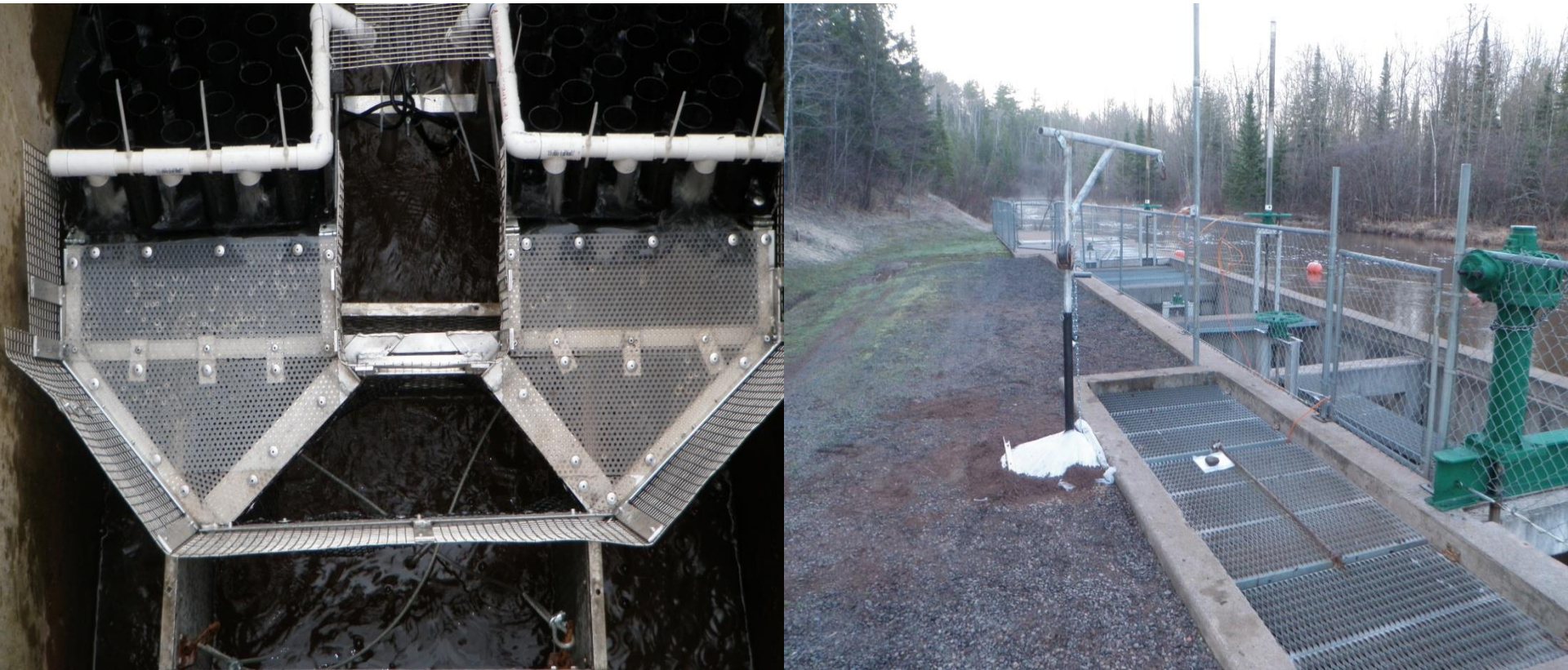
Brule River fish ladder and sea lamprey trap





Trap and sort(of)

- Only 42 sea lampreys captured during 2013 – ALL used the ELST
- Contractor was happy with ELST performance/efficiency



Current research

Improve ELST design:

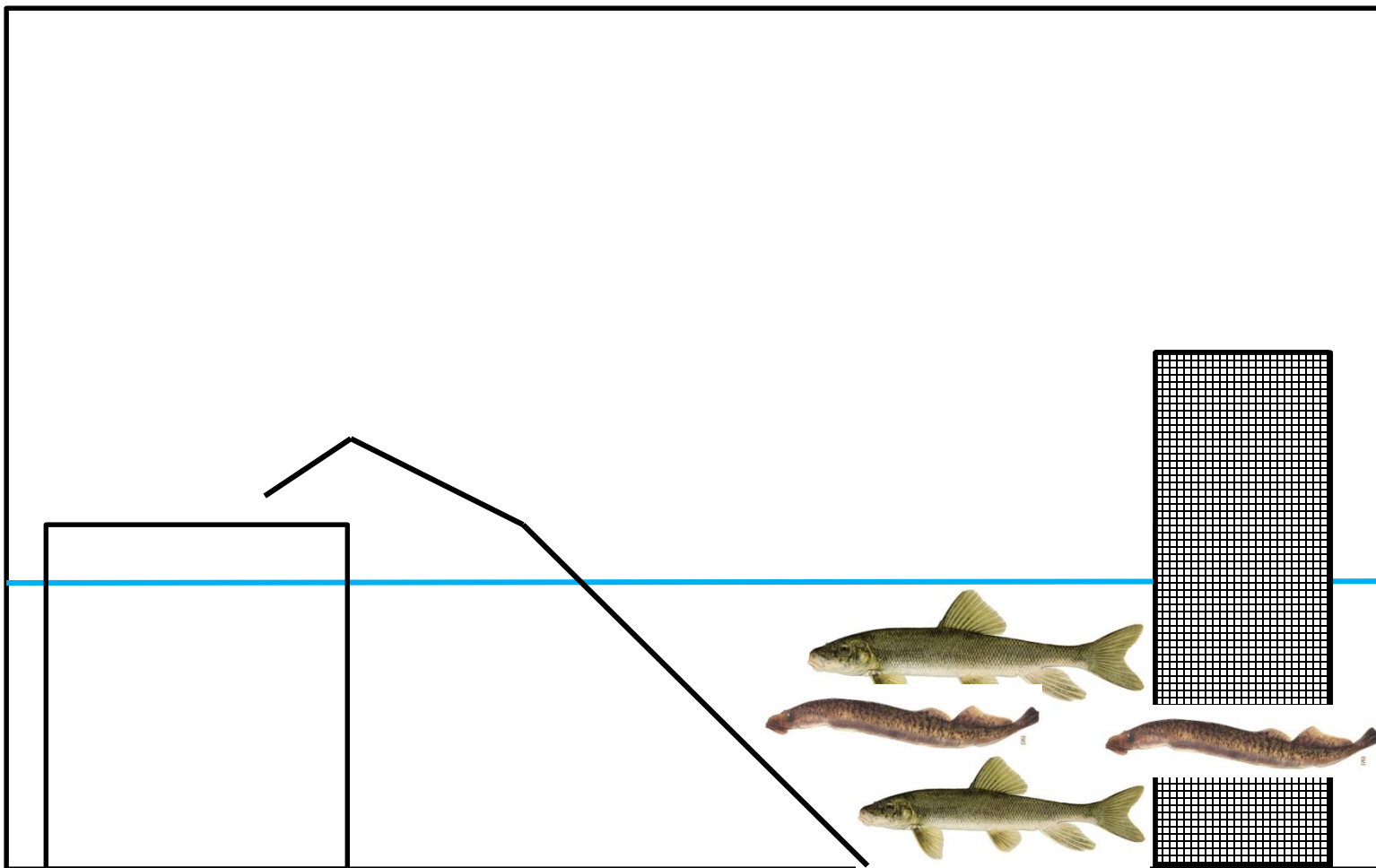
- Ramp and attraction flow
- Ramp angle
- Addition of 3kPZS

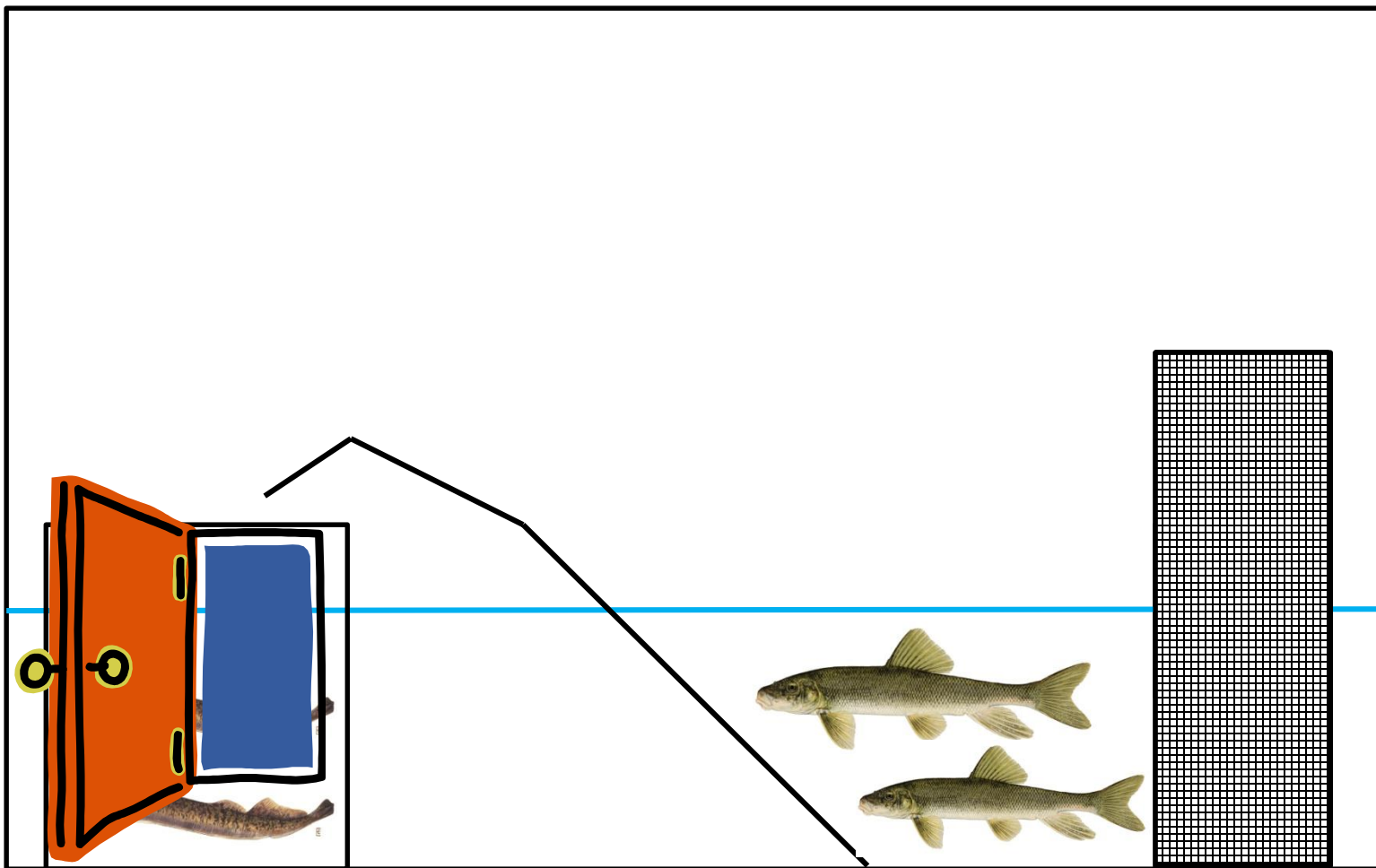
Automated fish sorting:

- Ramp type
- Sorting efficiency/time



Automated fish sorting





Trap and sort – where do we go from here?

- Can we repeat our results and increase our scale?
- What species are important?
 - How many to be biologically/socially significant
- Is there a balance between 0 and 100% passage?
 - Partner with States, Tribes, NGOs

Acknowledgements



- Brenna Riley (EMU)
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- USFWS trapping staff

Questions?

